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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,007	04/15/2004	Ryan James Berg	286685.124US1	7251
23483	7590	09/08/2005		
WILMER CUTLER PICKERING HALE AND DORR LLP 60 STATE STREET BOSTON, MA 02109			EXAMINER KISS, ERIC B	
			ART UNIT 2192	PAPER NUMBER

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/825,007

Applicant(s)

BERG ET AL.

Examiner

Eric B. Kiss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-17 have been examined.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 10, 12, 14, 16, 18, 20, 134, 136, 138, 140, 142, and 144.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is requested to provide the missing serial numbers for the related cases cited in paragraph [0001].
4. The specification is objected to because reference characters "140" and "142", although not present in the drawings (see the drawing objection above), appear to have

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been used to designate multiple elements (140 appears to describe a vulnerability assessment in paragraph [0010] and rectangular entities in paragraph [0112]; 142 appears to describe a vulnerability database in paragraph [0010] and ovals in paragraph [0112])

Claim Objections

5. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 recites what the lattice values (of claim 10) "can" include. Such permissive language does not require that the lattice values necessarily include any of the subsequent characteristics recited in the claim. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. See MPEP §2106.

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 17 is are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 refers to "The system of claim 20" in line 1. It is noted that no such claim 20 exists. In the interest of compact prosecution, this reference to claim 20 is subsequently interpreted as referring instead to claim 16 for the purpose of further examination.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The language of claims 1-17 raises a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. §101.

The claimed methods and systems of claims 1-17 are not tangibly embodied, as they do not require the use of hardware to realize the prescribed functionality, nor do the prescribed methods produce any tangible result.

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Further, it is noted that claims 16 and 17 recite systems comprising merely "computer implemented logic". Such "logic", presumably computer software elements or computer programs representing computer listings, constitutes non-functional descriptive material, per se, as it does not define any structural and functional interrelationships between the computer program and other claimed aspects of the invention which permit the computer program's functionality to be realized. Since a computer program is merely a set of instructions capable of being executed by a computer, the program itself is not a process, without the computer-readable medium needed to realize the computer program's functionality.

10. To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. §101 (non-statutory) above are further rejected as set forth below in anticipation of Applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-17 are rejected under 35 U.S.C. 102(b) as being anticipated by David Wagner, et al., "A First Step Towards Automated Detection of Buffer Overrun

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Vulnerabilites," Proceedings of the Network and Distributed System Security Symposium, Feb. 2000, (hereinafter *Wagner et al.*).

As per claims 1, 15, and 16, *Wagner et al.* discloses analyzing variables in source code and creating models therefrom in which each model specifies pre-determined characteristics about each variable (see, for example, section 1.1); using the variable models to create models of arguments to routine calls in the source code (see, for example, sections 1.1 and 3); and using the argument models in conjunction with pre-specified criteria for the corresponding routine calls to determine whether the routine calls possess vulnerabilities as a consequence of the arguments and known routine behavior (see, for example, sections 1.1 and 4).

As per claim 2, *Wagner et al.* further discloses the models specifying the memory size of a variable (see, for example, sections 1.1 and 3).

As per claim 3, *Wagner et al.* further discloses the models specifying the data size of a variable (see, for example, sections 1.1 and 3).

As per claim 4, *Wagner et al.* further discloses the models specifying whether the variable is a null terminated string or not null terminated string for variables of string value type (see, for example, sections 1.1 and 3).

As per claim 5, *Wagner et al.* further discloses the models specifying the type of memory of a variable (see, for example, sections 1.1 and 3).

As per claim 6, *Wagner et al.* further discloses the models specifying the value of a string for variables that are of a string value type (see, for example, sections 1.1 and 3).

As per claim 7, *Wagner et al.* further discloses the models specifying the origin of the data for a variable (see, for example, sections 1.1 and 3).

As per claim 8, *Wagner et al.* further discloses the models specifying characteristics of variable arguments (see, for example, sections 1.1 and 3).

As per claim 9, *Wagner et al.* further discloses the models specifying characteristics of expression arguments (see, for example, sections 1.1 and 3).

As per claim 10, *Wagner et al.* further discloses the models being specified as lattices (see, for example, sections 2 and 3).

As per claim 11, *Wagner et al.* further discloses the lattice values can include a value to represent no knowledge, a value to represent inconsistent knowledge, and a value to represent a refinement of knowledge (see, for example, sections 2 and 3).

As per claim 12, *Wagner et al.* further discloses the value to represent a refinement of knowledge including values to specify a range of specific values (see, for example, sections 2 and 3).

As per claim 13, *Wagner et al.* further discloses the pre-specified criteria for the corresponding routine including rules about the semantic behavior of the routine (see, for example, sections 1.1 and 3).

As per claim 14, *Wagner et al.* further discloses the vulnerabilities being buffer overflows (see, for example, section 1.1).

As per claim 17, *Wagner et al.* further discloses a database specifying rules to detect vulnerabilities based on an analysis of the argument models (see, for example, sections 1.1 and 3).

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


14. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature should be directed to the TC 2100 Group receptionist: 571-272-2100.

EBK /EBK
September 2, 2005


TUAN DAM
SUPERVISORY PATENT EXAMINER